ABSTRACT

An isolated sucrose synthase peptide. Also, a method of preparing ADPglucose by incubating the isolated sucrose synthase peptide with ADP in suitable conditions and then isolating and purifying the ADPG produced. Also, an assay kit for the spectrophotometric, fluorimetric or amperometric determination of sucrose, which kit includes the isolated sucrose synthase peptide. Also, a method of producing a transgenic plant that overexpresses sucrose synthase by inserting a genetic construct containing a DNA fragment that encodes the sucrose synthase peptide into a vector and transferring to a plant genome, and a transgenic plant obtained thereby.

~~Method of production of recombinant secrose synthase, use thereof in the manufacture of kits for determination of sucrose, production of ADPglucose and production of transgenic plants whose leaves and storage organs accumulate high contents of ADPgluclose and starch~~

~~A method is described for efficient production of large quantities of soluble recombinant SS in its active form, by expression of the gene that encodes SS in a strain of *Escherichia coli*. The expression vector used means that the recombinant SS produced possesses a histidine tail which facilitates its quick purification. In addition it describes sequences of mutated versions of the gene of SS that encode isoforms of SS suitable for the production ADPG. Making use of the "wild-type" and "mutated" versions of recombinant SS, an efficient method is described for production of ADPG and UDPG. It also describes the use of SS for the production of assay kits for the determination of sucrose. Finally, it describes the production of transgenic plants which overexpress the gene of SS, either constitutively, or in leaves or storage organs, and which have a high content (both in leaves and in storage tissues) of sucrose, ADPG, G6P and starch as a result of the high ADPG-synthesizing activity of SS.~~